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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,330	11/21/2001	James D. Beasom	125.009US01	2642

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EXAMINER

WEISS, HOWARD

ART UNIT PAPER NUMBER

2814

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/990,330

Examiner

Howard Weiss

Applicant(s)

BEASOM, JAMES D.

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-110 is/are pending in the application.
- 4a) Of the above claim(s) 1-78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 79-110 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-110 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 2814

Attorney's Docket Number: 125.009US01

Filing Date: 1/21/01

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Beasom

Examiner: Howard Weiss

Election/Restrictions

1. The Applicant's election without traverse of Specie (a), which reads upon Claims 79 to 110, in Paper No. 8 is acknowledged. Claims 111 to 126 have been canceled.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The disclosure is objected to because of the following informalities: In Paragraph 42 on Page 14, all numbers in scientific notation should be expressed as powers of 10. Appropriate correction is required.

Claim Objections

4. Claims 79 to 96 are objected to because of the following informalities: Claim 79 details "a second conductivity type" without first specifying a first conductivity type. When specifying sequentially labeled features in a claim, the introduction of such features should follow the logical sequence of the labeling (i.e. "1,2,3..." or "a,b,c..."). Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 80, 86 and 87 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claim 86 recites the limitation "the first edge of the first region" in Line 3. There is insufficient antecedent basis for this limitation in the claim.
8. Claim 80 recites the limitation "a second edge of the first top gate" without specifying a first edge of the first top gate.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Initially, and with respect to Claim 84, note that a "product by process" claim is directed to the product per se, no matter how actually made. See *In re Thorpe et al.*, 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).

Note that Applicant has burden of proof in such cases as the above case law makes clear.

11. Claims 79 to 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted Prior Art Figure 3 and Kwon et al. (U.S. Patent No. 5,306,652).

Admitted Prior Art Figure 3 shows most aspects of the instant invention including:

- a substrate **49**
- a thick dielectric region **61** and a thin dielectric region **64**
- a gate electrode **62** deposited upon said thin dielectric
- a top electrode **53**
- source **58** and drain **51** regions with said drain region separated from said top gate **92**
- a body region **60**

Admitted Prior Art Figure 3 does not show the thick dielectric region's lateral width defining the distance between the drain and said top gate. Kwon et al. teach (e.g. Figure 4) to separate the drain region **36** by a thick dielectric region **26** to form a transistor with low on-resistance and controllable breakdown voltage (Column 1 Lines 45 to 50). The separation distance **92** of admitted Prior Art Figure 3 is the same as drift region **24** as shown in Kwon et al. The top gate would be separated from the drain region by this region. It would have been obvious to a person of ordinary skill in the art at the time of invention to separate the drain region by a thick dielectric region as taught by Kwon et al. in the device of admitted Prior Art Figure 3 to form a transistor with low on-resistance and controllable breakdown voltage.

As to the grounds of rejection under "product by process", how the drift region is formed is an intermediate process step which does not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims.

12. Claims 107 to 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted Prior Art Figure 3 and Kwon et al., as applied to Claim 89 above, and further in view of Beasom (U.S. Patent Application No. 2002/0185696).

Admitted Prior Art Figure 3 and Kwon et al. show most aspects of the instant invention (Paragraph 11) except for the photo diode stack arrangement. Beasom teaches (e.g. Paragraphs 0041 to 0045) that is common and therefore obvious to include the lateral MOSFET in a photo diode stack arrangement as claimed. It would have been obvious to a person of ordinary skill in the art at the time of invention to include the lateral MOSFET of admitted Prior Art Figure 3 and Kwon et al. in a photo diode stack arrangement as taught by Beasom since this a typical arrangement in the art.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kawaguchi et al. (U.S. Patent No. 6,469,346) and Nakayama et al. (U.S. Patent No. 6,242,787) teach the use of thick dielectric layers in lateral MOSFETs and Disney et al. (ISPS '01) teaches the use of top gate regions.
14. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications. The official TC2800 Before-Final, **(703) 872-9318**, and After-Final, **(703) 872-9319**, Fax numbers will provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.

16. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 343	1/23/03
Other Documentation: PLUS Analysis Report	10/4/02
Electronic Database(s): EAST, IEL	1/23/03

HW/hw
23 January 2003


Howard Weiss
Examiner
Art Unit 2814